REMARKS

Applicants have identified errors in the specification and have made changes to correct the specification.

The drawings have been objected to under 37CFR 1.121(d), because they are informal.

Claims 1– 16 are pending in the application.

Claims 1– 16 have been rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Claims 1, 2, 5, 12-14, and 16 have been rejected under 35 USC 102(e) as being anticipated by Baker et al (US 6775231).

Claims 3 and 4 have been rejected under 35 USC 103(a) as being unpatentable over Baker in view of the admitted prior art.

Claims 7-11 have been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Specification changes

Changes have been made to bring the specification at page 4, lines 26-27 and at page 5, lines 13-14 into agreement with what is shown in the drawings on Fig. 1 and Figs. 7A to 7D. No new matter has been added by these changes.

Drawing Objections

The drawings have been objected to as being informal. A replacement set of formal drawings is provided herewith with each corrected sheet marked as a "Replacement Sheet." No new matter has been added by these corrections. The corrected drawings should now comply with 37CFR 1.121(d).

Rejections under 35 USC 112

Claims 1– 16 have been rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, claims 1 and 16 have been rejected since the word "sufficient" renders the claims indefinite.

To overcome the indefiniteness of the phrase a "sufficient number of consecutive service frames," this phrase has been simplified to recite "a service frame" in claims 1 and 16. Thus, the "means for guaranteeing" element in claim 1 and the "guaranteeing" step in claim 16 as amended now more clearly recites this aspect of applicants' invention. No new matter has been added by this amendment. As amended claims 1-16 should now be definite and allowable under 35 USC 112, second paragraph.

Rejections under 35 USC 102(e)

In paragraph 5 of the Office action, Examiner has rejected claims 1, 2, 5, 12-14, and 16 under 35 USC 102(e) as being anticipated by Baker et al (US 6775231).

More specifically, the Examiner states that "In Figure 3, Baker et al. teaches a dynamic weighted resource sharing system and method" and then enumerates, in bullet form, the equivalence of Baker to the specific elements of our claim 1. In bullet two the Examiner states:

"A scheduler (310) using an algorithm to guarantee that each data packet inputs (data packet flow) always receives at least its allocated service share if it remains backlogged over a sufficient number of consecutive service frames and a classifier (302) that checks a special Differentiated Services field of each packet header and are separated by Assured Forwarding class (bundle) where each class receives at least its allocated service share if there is always at least one data

packet flow in the bundle that remains continuously backlogged for the whole duration of a the allocated service time."

With reference to Baker, the Examiner seems to understand that "packet flow" or "data packet inputs" and "Assured Forwarding class" correspond to the "data packet flow" and "bundle" of the present invention. The correspondence is not correct. The "packet flow/data packet input" of Baker is the sequence of packets that the classifier 302 assigns to a specific "service class" (304 of Fig. 3), in other words it is the overall packet traffic of that class. In contrast, in the present invention (claims 1 and 16), the "data packet flow" is one of multiple "data packet flows" that are partitioned into the same "bundle." The "bundle" is a predesigned subset of "data packet flows" that is made irrespective of the class of service represented by each of the "data packet flows" in the bundle." Additionally, in Baker service is allocated only on one-level - the "service class" level. In contrast in accordance with the present invention, service is provided on a hierarchical two-level basis – one service level for each "data packet flow" level and a second-level for the "bundle" service. Thus the apparatus (claim 1) and method (claim 16) of the present invention make sure that

> (1) each individual "data packet flow" within the "bundle" always receives at least its guaranteed service rate (see claim 1, lines 14-17; claim 16, lines 14-17), and

> (2) the "bundle" also receives a service rate (see claim 1, lines 17-20;

claim 16, lines 17-20), that is at least equal to the sum of the service rates of its data packet flows (see claim 1, lines 23-25; claim 16, lines 22-24).

This aspect is described in our Abstract (and at page 2, lines 18-21), where our scheduler apparatus provides bandwidth guarantees to individual data packet flows as well as to bundles that are aggregations of those flows. Thus, as shown in our Fig. 4, we make sure that both the R service rates for the bundle (see

specification, page 10, lines 28-29)) and the ρ rates for the data packet flows (see specification, page 12, lines 21-24) are simultaneously enforced. This enforcement of service rate guarantees at <u>both the data packet flow and bundle levels</u> defines the hierarchical <u>two-level</u> bandwidth allocation mechanism of the present invention.

In contrast, Baker has only <u>one level</u> of bandwidth distribution (no hierarchy), which applies only to Baker's service classes. Baker's <u>one level</u> of bandwidth distribution control based on service class level is similar to our "bundle" level of bandwidth allocation. This aspect is described in Baker's Abstract, at lines 1-3 (and at col. 2, lines 34-36), where it describes a technique that dynamically adjusts resource allocations for <u>each traffic class</u> based on actual traffic load measured for each service class (underlining added). Thus, the Differentiated Service field (col. 5, lines 26-28) only measures data packet flow for each service class. As a result, Baker measures data packet flow for each service class and then allocates bandwidth <u>only at that service class level</u>, with <u>no guaranteed service level for individual data packet flows</u> within a service class.

Thus, even if is said that Baker performs the <u>same bandwidth allocation function</u> as independent claims 1 and 16 of the present invention, Baker performs the bandwidth allocation function in a <u>different way</u> using a one-level bandwidth allocation technique as opposed to our hierarchical two-level technique.

Clearly then, Baker performs the bandwidth allocation function in a <u>different way</u> and, consequently, he cannot be said to anticipate our independent claims 1 and 16 under 35 USC 102(e). Moreover since Baker does <u>not hint nor suggest</u> that a hierarchical "two-level" technique could be used to allocate bandwidth at <u>both</u> the data packet flow level and the aggregated data packet flow level (service class or bundle level), Baker does not make obvious our

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independent claims 1 and 16 under 35 USC 103(a). Consequently, amended independent claims 1 and 16 should now be allowable over Baker under 35 USC 102(e) and/or 103(a).

Since independent claim 1 should now be allowable over Baker under 35 USC 102(e), dependent claims 2-15 which depend from the allowable claim 1 should also be allowable for the same reasons.

Claim 5 is additionally distinguishable over Baker. The Examiner has based his rejection on the incorrect equating of Baker's "weights" with claim 5's "duration of the service frames". While the "duration of the service frame" may be related (in a complex way) to the weights of the sum of the data packet flows that are currently backlogged, it is not the same any of them individually. Thus, the "duration of the service frames" recited in claim 5 is not derived in the same manner as Baker's "weights" and is hence <u>does not do the same function</u> and <u>does not produce the same results</u> as Baker's "weights." Hence, for this additional reason claim 5 should be allowable over Baker under 35 USC 102(e).

<u>Rejections under 35 USC 103(a)</u>

Claims 3 and 4 have been rejected under 35 USC 103(a) as being unpatentable over Baker in view of the admitted prior art.

None of the admitted prior art teaches what is lacking in Baker, namely, the use of a two-level hierarchical bandwidth allocation scheme that allocates bandwidth at <u>both</u> the data packet flow and the bundle levels. Hence, Baker in combination with the admitted prior art would still not teach, hint at, nor suggest independent claim 1 under 35 USC 103(a). Since independent claim 1 should be allowable over Baker in combination with the admitted prior art under 35 USC 103(a), so should dependent claims 3 and 4 be allowable for the same reasons.

Claim 6 has been rejected under 35 USC 103(a) as being unpatentable over Baker.

As discussed above, since independent claim 1 should now be allowable over Baker under 35 USC 103(a), so should its dependent claim 6 be allowable for the same reasons.

Allowable subject matter

Claims 7-11 and 15 have been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As discussed above, since independent claim 1 should now be allowable over Baker under 35 USC 103(a), so should its dependent claims 7-11 and 15 be allowable for the same reasons as independent claim 1.

Additional prior Art

The additional prior art made of record and not relied upon has been noted.

Summary

In summary, claims 1 – 16 should now be allowable under 35 USC 102(e), 103(a), and 112 and the same is respectfully requested.

If there were any remaining issue, applicant's attorney would welcome a call from the Examiner to resolve such issue.

Respectfully,

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